Transforming Rural Livelihoods through Effective Climate Services

New York, NY, September 2019

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CGIAR

Research Program on Climate Change, Agriculture and Food Security

CCAFS

Workshop Report: Transforming Rural Livelihoods through Effective Climate Services

New York, NY, September 2019

CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)

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Correct citation:
Walsh K. 2019. Transforming Rural Livelihoods Through Effective Climate Services, New York, NY, September 2019. CCAFS Workshop Report. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

CCAFS Workshop Reports aim to disseminate interim climate change, agriculture and food security research and practices and stimulate feedback from the scientific community.

The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) is led by the International Center for Tropical Agriculture (CIAT) and carried out with support from the CGIAR Trust Fund and through bilateral funding agreements. For more information, please visit https://ccafs.cgiar.org/donors.

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Abstract

Transforming Rural Livelihoods Through Effective Climate Services was a seminar held in New York in September 2019 to highlight the work that the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) and the International Research Institute for Climate and Society (IRI) at Columbia University have conducted together. Experts from both CCAFS and the IRI presented projects on increased resilience of smallholder farmers made successful through collaboration. Guest speakers from the World Bank Group, World Food Program, CSIRO, CIAT, and the United Nations shared their perspectives on emerging opportunities for climate services to transform rural livelihoods. The goal of the event was to share information about projects and spark useful discussion about the way forward for climate services in rural communities.

Keywords

Climate services; Smallholder farmers; Resilience

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Acknowledgements

The workshop was organized by the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) Flagship 4: Climate Services and Safety Nets and the International Research Institute on Climate and Society (IRI), Columbia University, with funding provided by CCAFS Flagship 4.

Contents

Acronyms

CCAFS	CGIAR Research Program on Climate Change, Agriculture and Food Security
IRI	International Research Institute for Climate and Society
WFP	World Food Programme
CSIRO	Commonwealth Scientific and Industrial Research Organization
CIAT	International Center for Tropical Agriculture
ICT	Information and Communication Technologies
NAP	National Adaptation Policies
WBG	World Bank Group
SDG	Sustainable Development Goal

Introduction

Transforming Rural Livelihoods Through Effective Climate Services was a seminar held at Columbia University on September 25, 2019 during New York's Climate Week activities. Hosted by CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) and Columbia University's International Research Institute for Climate and Society (IRI), the event allowed experts to summarize and share projects that make effective climate services accessible to farmers and smallholders in rural communities.

Stakeholders from global organizations that include the World Bank, World Food Programme (WFP), and the UN as well as other guests received a complete picture of the achievements of CCAFS and IRI through a combination of their climate and agricultural expertise.

Presenters included Ana Maria Loboguerrero, Head of Global Policy Research, CCAFS; James Hansen, Senior Research Scientist, IRI; Phillip Thornton, Flagship Leader, CCAFS; and Lisa Goddard, Director, IRI. Following presentations, an expert panel comprised of Paul Desanker, Manager, National Adaptation Plans and Policy Adaptation Programme, United Nations Climate Change Secretariat; Brian Keating, Honorary Fellow, Agriculture Food & Health, Commonwealth Scientific and Industrial Research Organization (CSIRO); Gernot Laganda, Chief, Climate and Disaster Risk Reduction Programmes, World Food Programme; Arame Tall, Senior Climate Change Specialist, World Bank Group; and moderated by Ruben G. Echeverría, Director General, International Center for Tropical Agriculture (CIAT) discussed the emerging opportunities for climate services to transform rural livelihoods.

Rationale for Workshop

The UN Secretary General's climate action summit focuses on eight key action areas, one of which is resilience and adaptation. As decision makers seek solutions to raise ambition for enhancing resilience and adapting to climate change, a key opportunity in the context of rural livelihoods is around better climate services. Rural communities are often at the frontline of climate variability and change, and climate services can enable these communities to make better farming decisions. Climate information can be bundled with information on best practices and markets to incentivize adoption of climate smart technologies and practices, thus better preparing farming communities to face climate risks, while also moving towards sustainable and prosperous development pathways.

The aim of climate services is to provide farmers access to climate information, translated into actionable advice, together with financial services that empower them to adopt climate-smart practices to manage risks, build resilience, and improve their lives and livelihoods. The most successful models of climate services are built upon partnerships between government, NGOs, and private sector organizations. They engage farmers through participatory processes (usually built upon national agricultural extension services), through Information and Communication Technologies (ICT) based services, and through various communications and media outlets. This multi-faceted approach to service delivery is being successfully implemented in a growing number of countries, and now offers enormous potential for being scaled up throughout the global South. Such has been the focus of the collaborative work of IRI and CCAFS over the past decade.

Since the IRI first collaborated in formulating CCAFS, the partnership has enabled advances in climate services and climate risk management for smallholder agriculture in the developing world, which neither IRI nor CCAFS could have achieved independently. This meeting was an opportunity to discuss what has been accomplished through the partnership as well as how emerging IRI and CCAFS activities might help raise ambition for actions to enhance resilience and adaptation, announced at the climate action summit. We will explore opportunities to deepen the partnership and enhance its impact for rural communities at the frontline of climate

What has the partnership achieved that neither the agricultural nor the climate research communities could have achieved independently?

Ana Maria Loboguerrero, Head of Global Policy Research at CCAFS, pointed out specific projects that achieved success in climate services that would not have been possible without the collaboration of agricultural experts and climate researchers. Her major points were taken from projects throughout the world. Her presentation looked at collaboration in Rwanda, which have led to the enhanced capacity of over 100,000 farmers to use and understand climate information.

She also discussed the Local Technical Agroclimatic Committees in Latin American that are creating dialogue between climate prediction, crop modelling, local governments, and other relevant institutions. Their discussions produce bulletins that lead to climate informed action.

These bulletins collect useful information that can be accessed by local farmers, accessibility being a key step achieved in making climate services an effective adaptation option. This process started in Colombia and is now active in seven countries, reaching approximately 500,000 farmers with recommendations.

Strides were also made with Early Warning Advisories in Vietnam. In this country, El Nino advisories and climate risk maps are translated into adaptation plans for crops. As a result, early planting reduced risk of salinity intrusion in 600,000 hectares in 2018.

Finally, a digital climate-informed advisory in Ghana was developed by partnering with a local private company that allowed climate information to reach farmers through mobile phones. A total of 300,000 farmers received market alerts and climate information due to this initiative.

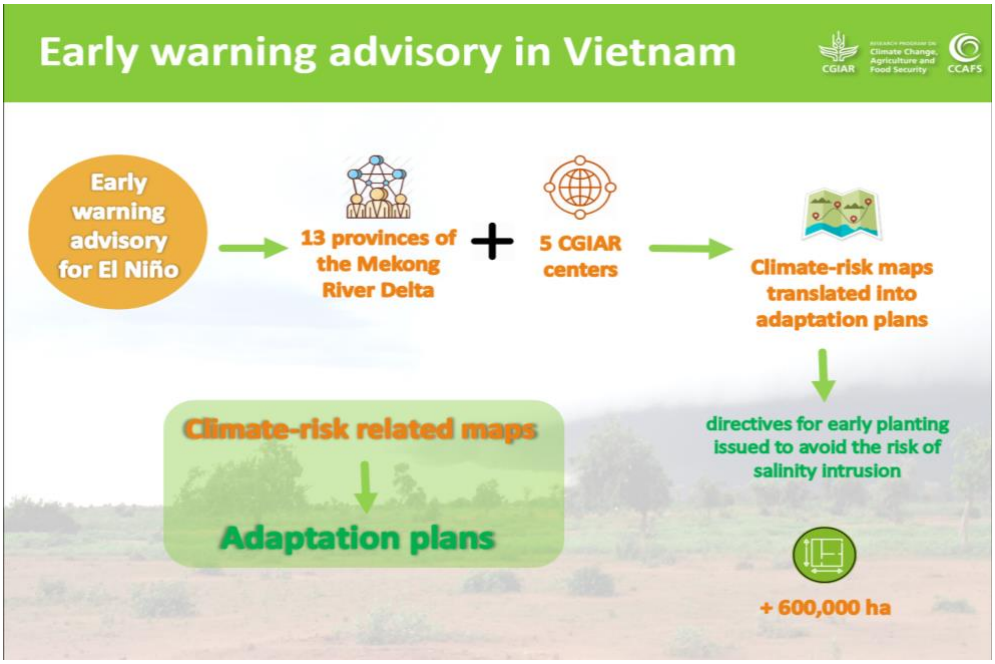


Figure 1: Early warning advisory in Vietnam, Presentation by Ana Maria Loboguerrero, Head of Global Policy Research, CCAFS

James Hansen, Senior Research Scientist at IRI, who served as flagship leader of CCAFS for the past nine years, spoke to the importance of the collaboration between the two organizations as well. The CGIAR partnership, through CCAFS, has greatly multiplied the impact of IRI's efforts, by allowing it to take advantage of the presence and reach of the CGIAR in countries where they collaborate, reach millions of farmers with improved weather and climate information, and contribute to a broader change in how the agriculture sector and major development organizations approach the climate change challenge.

He explained that in agricultural climate services, demand- and supply-side capacity constraints reinforce each other, impeding the development of effective climate services. The climate research community is able to overcome weaknesses in the supply of climate information, but this can lead to innovative climate information products that are not used and do not necessarily meet the needs of decision makers. The agricultural research community is

in a position to improve the communication of climate information and support farmers to act on that information. But without advances in the supply of locally relevant climate information, such efforts seldom get past a pilot scale, often resulting in frustrated farmers who cannot access improved information after a project ends. There has been significant progress in areas where IRI climate and CGIAR agriculture expertise were brought together to overcome supply- and demand-side challenges in a balanced and coordinated manner.

An example of achieving accessibility and sustainability was presented in Rwanda. Meteo Rwanda has a 15-year gap in its climate records. IRI worked to reconstruct this data as well as to develop the tools to aid in this reconstruction so the agency did not have to dedicate an unreasonable amount of its human workforce to the critical task. Now Meteo Rwanda has an advanced suite of decision-making products for agricultural professionals. These agricultural professionals continue training more than 130,000 farmers.

Jim Hansen, IRI, speaking at Transforming Rural Livelihoods Through Effective Climate Services Seminar. Photo credit: Jacquelyn Turner, IRI/CCAFS

What opportunities are emerging for agricultural and climate science to transform the livelihoods of smallholder farmers

Phillip Thornton, Flagship Leader of CCAFS, spoke about the needs of the global food system and the changes to farming and marketplaces in rural areas. He stressed that the number of malnourished individuals has been climbing again in the past few years after a period of reduced

global hunger. Agriculture is playing a significant role in pushing the Earth beyond safe operations, and farming will therefore need to change. Farmers need better ways to reuse resources to increase efficiency. The future of the sector depends on advances like floating agriculture, already being developed in Bangladesh. Other advances include urban agriculture and aeroponic vertical farming. Climate and weather information needs will also change. An opening avenue for delivering high quality information currently are early warning systems for pests and diseases that utilize phone apps and other text messaging directly to farmers. As heat stress continues to increase morbidity for humans and livestock around the world, these early warning systems become imperative for avoiding the worst heat waves.

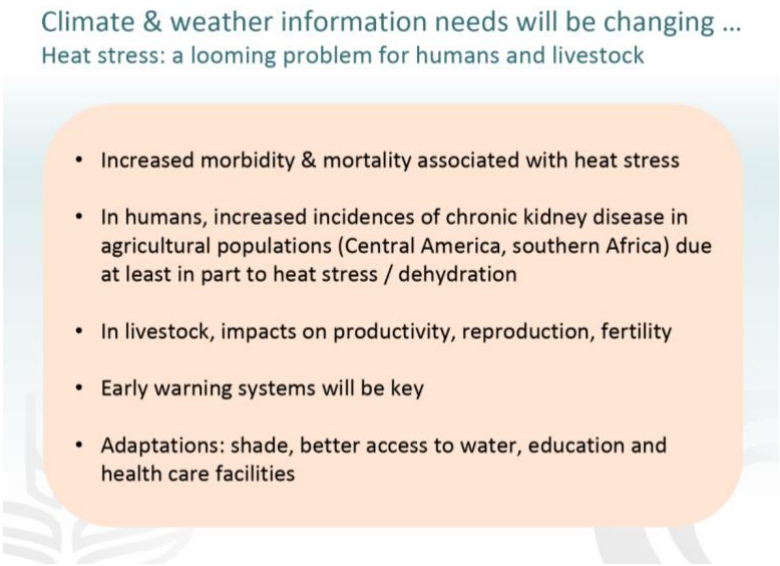
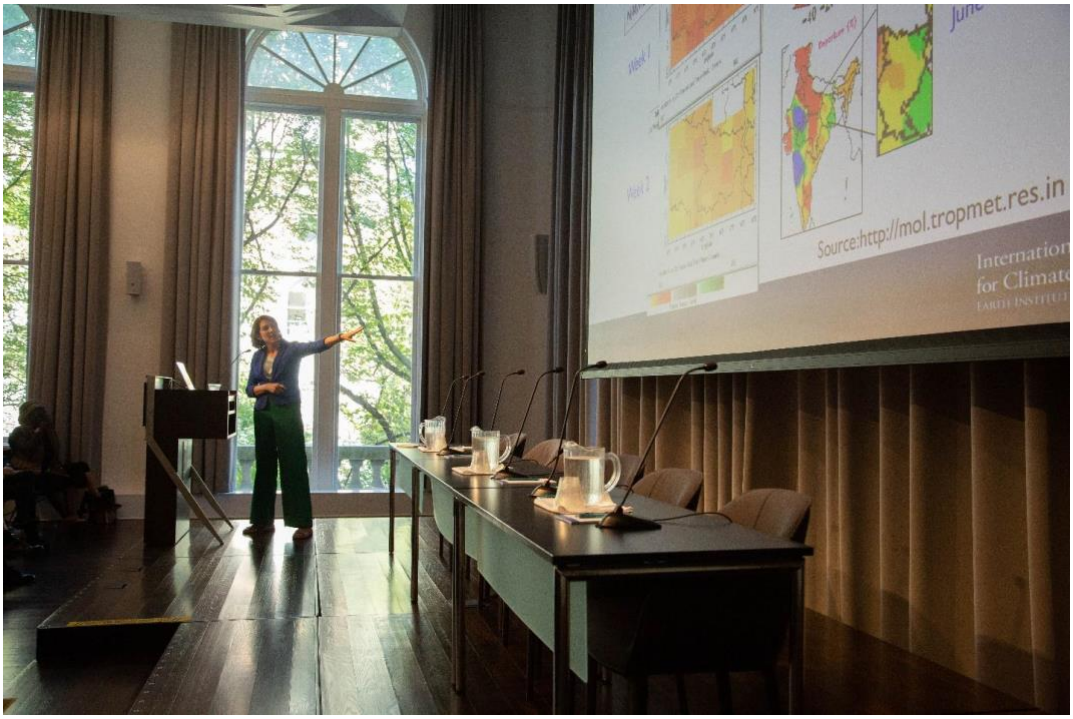


Figure 2: Climate and weather information needs, Presentation by Phillip Thornton, Flagship leader, CCAFS

Thornton summed up his presentation by highlighting the effectiveness of climate services as an adaptation strategy so long as we identify where it is most needed, and who needs what for successful adaptability. Those areas with increased exposure and environmental hazards are most in need of climate services, including small-scale crop and livestock holdings with high dependency on rainfall, areas where drought is a hazard now and in the future, and areas where farmers do not currently have access to climate information for decision making.

Continuing the second session, Lisa Goddard, director of IRI, discussed climate scientists' work with agricultural experts to make simple forecasts that are more targeted and user specific. There are current opportunities to continue work aligned with forecasting designed for the needs of rural smallholders. One area includes sub-seasonal forecasting -- a forecast for the next 1-4 weeks -- that would allow farmers to set dates for planting, fertilizer application, pesticide application, harvesting, and transport. Forecasts on seasonal and decadal climate time scales (2-20 years) can also offer potential insights into drought or storm variabilities that would allow for resilience in land management, cropping choices, and infrastructure decisions.



Lisa Goddard, Director, IRI, speaking at Transforming Rural Livelihoods Through Effective Climate Services Seminar. Photo credit: Jacquelyn Turner, IRI/CCAFS

Panel Discussion: What are the emerging opportunities for climate services to transform rural livelihoods?

The expert panel discussion focused on answering the question: What are the emerging opportunities for climate services to transform rural livelihoods? Paul Desanker, Manager, National Adaptation Plans and Policy Adaptation Programme, United Nations Climate Change Secretariat, approached this question by describing the implementation of National Adaptation Policies (NAP) and how this process leads to the eventual realization of Sustainable Development Goals (SDGs) in each country. He stresses that a NAP has to manage a wide number of related systems working for each sector in a unique way within each country. Brian Keating, Honorary Fellow, Agriculture Food & Health, CSIRO, shared a story about the transformative power of seasonal forecast access on Nairobi's maize crop community, highlighting the need for a stronger evidence base for the value of climate services. This needs to be risk-based and address economic and livelihood benefits (and costs) in order to prioritize and target interventions. Gernot Laganda, Chief, Climate and Disaster Risk Reduction Programmes, WFP, discussed the problems faced when fighting world hunger and how climate services can help in this area. With 821 million people lacking food stability, there is an undeniable relationship between climate shocks and hunger. The three major areas where climate services can build resilience to these shocks are: risk reduction (planting trees, transferring cash before disasters), insurance options, (forecast based finance training for governments), and anticipating shocks (early warning systems and advisories).

Arame Tall, Senior Climate Change Specialist at the World Bank Group (WBG), informed participants that WBG has an Action Plan with three parts.

- Scale up finances for adaptation to $50 billion by 2025.
- Mainstream adaptation climate services into planning in order to manage climate risks.
- Pilot a metric to understand the outcomes of adaptation. CCAFS and IRI have the ability to bridge the gap between this large, global funding commitment and local, effective innovation.

Panel discussion at Transforming Rural Livelihoods Through Effective Climate Services seminar. Photo credit: Jacquelyn Turner, IRI/CCAFS.

Conclusion

Transforming Rural Livelihoods Through Effective Climate Services brought together key international actors in the adaptation space during Climate Week in New York. Participants received an overview of the ongoing resilience projects in rural communities made possible by the collaboration of climate scientists at IRI and agricultural experts at CCAFS. Through this, it was made clear that climate services can be an effective adaptation strategy when approached with insights from both communities; quality information is critical for effective decision making just as delivering this information to smallholders is necessary for adaptive action to take place. Discussions ensued about the potential areas of work in climate services and how they can be used to secure SDGs in the near future. Conversation between participants focused on the gaps

that must be closed in the climate service sectors and how to shape future climate services to the evolving needs of rural livelihoods.